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(71) Applicant(s)
Telefonaktiebolaget L M Ericsson
(Incorporated in Sweden)
SE-126 25, Stockholm, Sweden

(72) Inventor(s)
Krister Törnqvist
Bengt Johan Anders Carlström

(74) Agent and/or Address for Service
Haseltine Lake & Co
Imperial House, 15-19 Kingsway, LONDON,
WC2B 6UD, United Kingdom

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UK CL (Edition P) G4A AFGX AUDB , H4L LDGP LDGX
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(54) Abstract Title
Internet access for a mobile communications device

(57) A method for enabling a user of a mobile communications device having a small display and a relatively narrow bandwidth connection to receive information from an Internet web site which contains large quantities of data. The user retrieves the data from the web site at a terminal having a large display and a wide bandwidth connection, and selects the information to be received at the mobile device, together with a set of conditions under which the information is to be transmitted to that device. For example, the user may arrange for the information to be transmitted at predetermined times, or on request, or whenever the selected information changes.

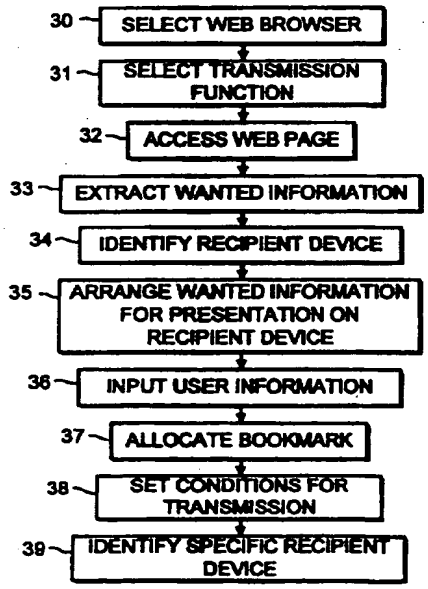

FIG. 2

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

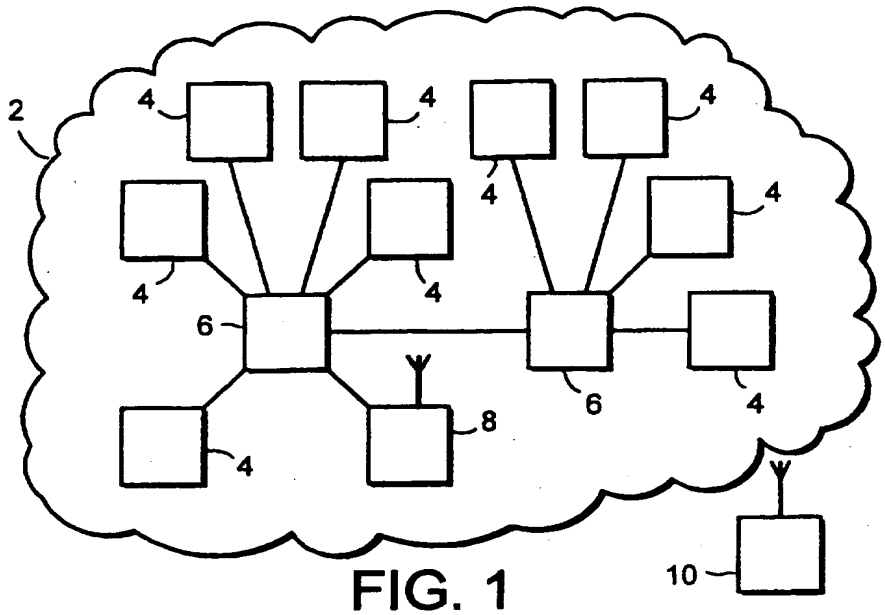
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FIG. 1

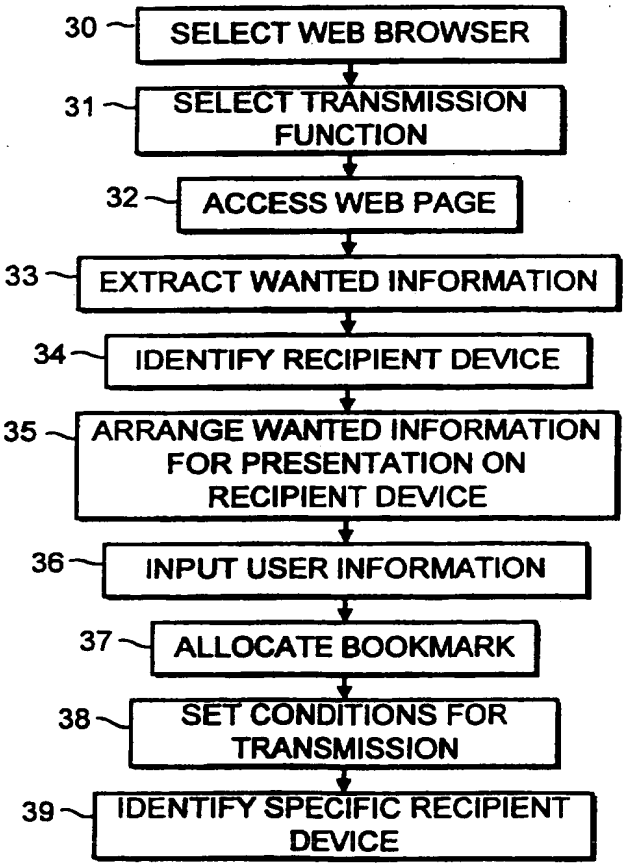
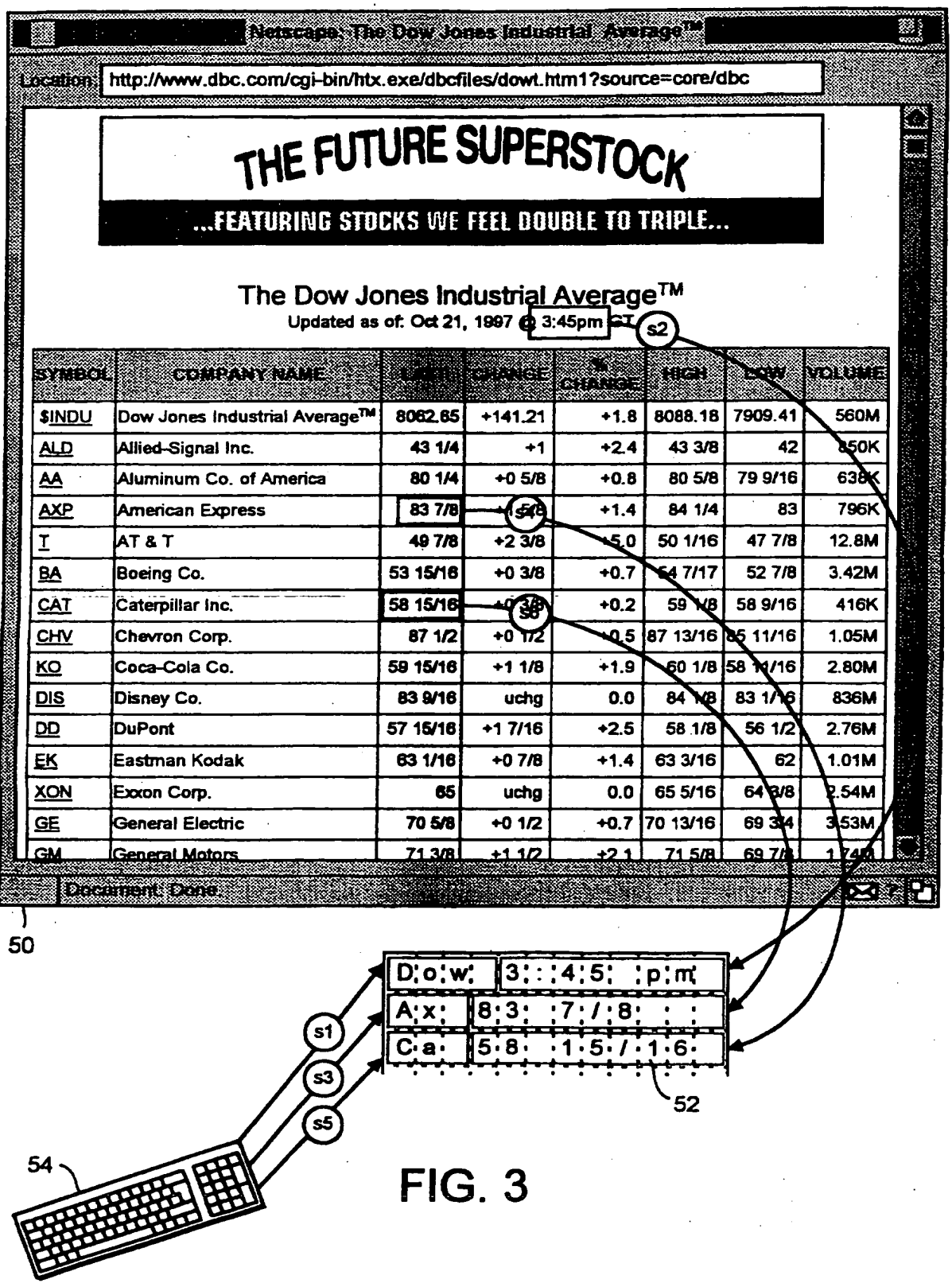

30
SELECT WEB BROWSER
31
SELECT TRANSMISSION FUNCTION
32
ACCESS WEB PAGE
33
EXTRACT WANTED INFORMATION
34
IDENTIFY RECIPIENT DEVICE
35
ARRANGE WANTED INFORMATION FOR PRESENTATION ON RECIPIENT DEVICE
36
INPUT USER INFORMATION
37
ALLOCATE BOOKMARK
38
SET CONDITIONS FOR TRANSMISSION
39
IDENTIFY SPECIFIC RECIPIENT DEVICE

FIG. 2


Netscape: The Dow Jones Industrial Average™
Location: http://www.dbc.com/cgi-bin/htx.exe/dbcfiles/dowt.htm1?source=core/dbc
THE FUTURE SUPERSTOCK
...FEATURING STOCKS WE FEEL DOUBLE TO TRIPLE...
The Dow Jones Industrial Average™
Updated as of: Oct 21, 1997 @ 3:45pm ET
s2
SYMBOL | COMPANY NAME | LAST | CHANGE | % CHANGE | HIGH | LOW | VOLUME
$INDU | Dow Jones Industrial Average™ | 8062.65 | +141.21 | +1.8 | 8088.18 | 7909.41 | 560M
ALD | Allied-Signal Inc. | 43 1/4 | +1 | +2.4 | 43 3/8 | 42 | 850K
AA | Aluminum Co. of America | 80 1/4 | +0 5/8 | +0.8 | 80 5/8 | 79 9/16 | 638K
AXP | American Express | 83 7/8 | | +1.4 | 84 1/4 | 83 | 796K
T | AT & T | 49 7/8 | +2 3/8 | +5.0 | 50 1/16 | 47 7/8 | 12.8M
BA | Boeing Co. | 53 15/16 | +0 3/8 | +0.7 | 54 7/17 | 52 7/8 | 3.42M
CAT | Caterpillar Inc. | 58 15/16 | | +0.2 | 59 1/8 | 58 9/16 | 416K
CHV | Chevron Corp. | 87 1/2 | +0 1/2 | +0.5 | 87 13/16 | 85 11/16 | 1.05M
KO | Coca-Cola Co. | 59 15/16 | +1 1/8 | +1.9 | 60 1/8 | 58 11/16 | 2.80M
DIS | Disney Co. | 83 9/16 | uchg | 0.0 | 84 1/8 | 83 1/16 | 836M
DD | DuPont | 57 15/16 | +1 7/16 | +2.5 | 58 1/8 | 56 1/2 | 2.76M
EK | Eastman Kodak | 63 1/16 | +0 7/8 | +1.4 | 63 3/16 | 62 | 1.01M
XON | Exxon Corp. | 65 | uchg | 0.0 | 65 5/16 | 64 3/8 | 2.54M
GE | General Electric | 70 5/8 | +0 1/2 | +0.7 | 70 13/16 | 69 3/4 | 3.53M
GM | General Motors | 71 3/8 | +1 1/2 | +2.1 | 71 5/8 | 69 7/8 | 1.74M
Document: Done
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Dow: 3::45:pm
Ax: 83 7/8
Ca: 58 1/5/16
s1
s3
s5
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FIG. 3

DATA TRANSMISSION

TECHNICAL FIELD OF THE INVENTION

This invention relates to a method of extracting data from a site in a computer network, and transmitting the data to a mobile communications device. More specifically, the invention relates to the extraction of data from a page in the world-wide web, and the transmission of data to a portable device such as a mobile phone.

DESCRIPTION OF RELATED ART

The world-wide web (WWW) is becoming a widely used source of information. The web consists of a network of computers, on which users are able to create and store useable information on so-called web pages. Other users are then able to access those pages, downloading the relevant information to their own computer for use there.

The proliferation of web pages means that a user needs a tool to be able to locate relevant information, and the solution which has been developed is the web browser, a software product which searches available web pages, on the basis of criteria (for example Keywords) input by the user, to select pages which may be of interest.

Users typically use recent model personal computers or workstations to retrieve information from web pages and, to enhance the attractiveness and useability of the information contained in a web page, the creators thereof typically use graphical images, and multiple colours in their pages. The result is that, in order successfully to receive the information, it is necessary to be using a computer with a high-quality colour display, and to have a large bandwidth connection to the network.

These requirements mean that it is not usually

possible to access information from web pages using a handheld portable device. Firstly, the narrow bandwidth available in mobile networks is generally insufficient to be able to receive many information services at an acceptable speed.

Moreover, the size and quality of the display available on a handheld device will often mean that the information will not appear in an acceptable form.

One solution to this problem is described in a document "WAP Architecture Draft Version 0.9" published on the WWW at address http://www.xwap.com/docs/arch-09.pdf, and available at least between October 1997 and January 1998.

This proposes an architecture which allows handheld devices to gain access to a web. However, only web pages specifically designed for handheld devices can be accessed. There is no possibility in this prior art solution for accessing information in standard web pages.

SUMMARY OF THE INVENTION

The present invention relates to a method, and a system, which allow a user to receive information from a web page on a mobile device.

In accordance with preferred embodiments of the invention, the information can be obtained from any existing web site, and transmitted to any mobile device, because the adaptation of the form of the information is carried out by the user himself.

More specifically, the user retrieves information from a site in the computer network to a computer which allows all of the information to be viewed, and the user selects information which is to be transmitted to the mobile device based on the available bandwidth of the connection and the available size of the display on the device, and sets a predetermined condition under

which the information will be transmitted.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a schematic illustration of a communications network used in implementing the present invention.

Figure 2 is a flow chart illustrating a method in accordance with the invention for retrieving information.

Figure 3 further illustrates the method in accordance with the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Figure 1 shows, in greatly simplified schematic form, a computer network 2 such as the internet. The network is made up of a large number of computers 4, each connected to a respective interconnected node 6. The nodes 6 also include interconnections to telephone networks, and a connection to a base station 8 in a cellular network is also shown, the connection being made through the telephone network and the cellular network (not shown).

Figure 1 also shows a mobile station 10 which has access to the cellular network of which the base station 8 forms a part.

As is well known, information may be available on the network 2, which in this context is often referred to as the world-wide web (WWW), in the form of web pages. These web pages are stored on respective host computers, where they can be updated by information providers and can be downloaded, either free of charge or on payment of a fee, by users of other computers in the network.

The information on these web pages, or web sites, is usually presented in a way which requires a high bandwidth connection to the computer which is accessing the page, and which requires a large high quality

display on that computer.

Because of the large quantity of information available on the proliferation of web pages, users of the internet typically have access to software products, called web browsers, which search for web pages containing information relevant to a user's request. Alternatively, however, if the user knows the address of the site which he wishes to access, for example because he has seen an advertisement for the site, or because he has accessed information from the site on a previous occasion, the user can enter the relevant address to gain access to the information at that site.

Figure 2 is a flow chart setting out the steps of the method carried out by a user wishing to implement the invention. In step 30, the web browser software is selected on the user's computer. Further, in step 31, the transmission function software, for implementing the invention, is also selected. The transmission function software is preferably a module of the web browser software, and accessible therewith. However, the transmission function software may alternatively be a separate application.

In step 32, the user accesses the web page containing the information service with the data which he wishes to be able to retrieve, and downloads the information from that page to his computer. The web page may be accessed using the browser or by supplying the address of the page, if known. In step 33, the user identifies the portion of the downloaded information which is important for his purposes.

For example, if the user wishes to receive information from a multicoloured web page containing moving graphics images on a mobile phone having only a small monochrome display, he will only be able to

receive a small fraction of the available information. As an example, the information service at a web page might contain financial information, for example relating to share prices.

Using his computer mouse, or keyboard inputs, the user is able to identify the portion of the displayed information from the web page which he wishes to be transmitted to his mobile phone.

In step 34, the user identifies the type of device to which he wishes the information to be transmitted. The transmission function software has access to stored information relating either to the general or to the specific type of device, which allows it to determine how much information can be displayed on such a device. In addition, the software contains templates for the displays of the different types of device, and, again by means of his computer mouse or keyboard, the user arranges the extracted wanted information in the way which he wishes it to be presented on the mobile device which is to receive the information (step 35 of the procedure in Figure 2). For example, the user can indicate where on the display of the mobile device the information is to appear.

At step 36, the user is also given the option of inputting additional information. For example, if the only wanted information extracted from a particular web page is, say, a share price as mentioned above, the user is given the option of inputting additional text to identify that data when it appears on the display of his mobile phone.

At step 37, the user is given the option of allocating a "bookmark", for example a few characters long, which identifies the information.

At step 38, the user is asked to set the conditions under which the information will be

transmitted to the mobile device. For example, the extracted information may be sent whenever it is requested by the user giving the identifying "bookmark" mentioned above. Alternatively, the extracted information may be transmitted regularly, for example at a specific time each day, or every hour. Alternatively, the information may be transmitted whenever there is a change in the web page, or in the extracted information as it appears on the web page. As a further alternative, the information may be transmitted whenever the extracted information changes by an amount which exceeds a threshold. For example, when the extracted information is a share price, the user may request that the extracted information be transmitted whenever it has changed by, say, more than 2% since a previous transmission. Of course, other transmission criteria may also be devised.

In step 39, the user defines the device to which the information is to be transmitted. For example, where the recipient device is a mobile phone, the user inputs the phone number thereof, to which the computer must send the information over the cellular network via the base station 8.

Figure 3, which illustrates the process of identifying the information to be transmitted to the mobile device, shows a WWW page 50 which acts as a source of the required information and a window 52 that represents the display of the target device.

On his PC, or other networked computer, the user opens the information source WWW page with a browser and another window that represents the display of the target device. This window must be adapted to that display. In this example, the display is defined to have a row length of 12 characters. As mentioned above, the adaptation of the window is carried out by

the software.

The user now defines what will be shown on the target display as a mix of fixed text strings input from the PC keyboard 54 and dynamic information fields fetched from the information source.

This can be done in the following way:

The user starts to define a title row and in step 51 he types "Dow" and adds in step 52 the dynamic time information from the source with help of the software. This software will give a user-friendly and familiar interface to the user, e.g. resembling one of the well-known "copy-and-paste" and "drag-and-drop" functions. The actual value of the time will be shown in the window indicating what information will be placed there.

The user continues by defining the next line and has decided to start with two characters identifying the information of the row followed by a space. In step 53 he types "Ax" for American Express and then, in step 54, he adds the dynamic information from the information source WWW page. In step 55 he types "Ca" to identifying the share price of Catepillar Inc., and in step 56 he adds the relevant dynamic information from the WWW page.

It is the information appearing in the window 52 which is then transmitted to the mobile device when the relevant criteria are met, as discussed above.

When the device is in a cellular network, the communication thereto can be, for example, a Short Message Service (SMS) message, a data message sent on a data connection in the cellular network, or a paging message sent on a paging network. Because the information to be transmitted is only a part, perhaps a very small part, of the total information available on the site, a relatively low bandwidth connection can be

used satisfactorily.

There is thus disclosed a system which allows a user to receive required information from a web page in a computer network on a mobile device.

CLAIMS

1. A method of retrieving information from a site in a computer network to a mobile communications device, the method comprising:

retrieving information from the site to a terminal;

selecting information from the retrieved information; and

transmitting the selected information to the mobile communications device when a predetermined condition is met.

2. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device when a predetermined condition is met comprises transmitting the selected information at at least one preset time.

3. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device when a predetermined condition is met comprises transmitting the selected information when the selected information changes.

4. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device when a predetermined condition is met comprises transmitting the selected information when a change in the selected information changes meets a predetermined condition.

5. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device when a predetermined condition is met comprises transmitting the selected information on request.

6. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device comprises transmitting the

selected information on a data connection in a cellular network.

7. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device comprises transmitting the selected information as a Short Message Service message in a cellular network.

8. A method as claimed in claim 1, wherein the step of transmitting the selected information to the mobile communications device comprises transmitting the selected information on a paging network.

9. A computer terminal, for connection to a computer network, the terminal comprising:

means for retrieving information from a site in the computer network;

means for selecting information from the retrieved information; and

means for setting a predetermined condition under which the selected information will be transmitted to a mobile communications device.

10. A computer terminal as claimed in claim 9, comprising means for supplying a user with an indication of a form of the selected information required by the mobile communications device to which the information will be transmitted.

11. A computer-readable memory, carrying a program to implement the following steps:

retrieving information from a site in a computer network to a computer running the program;

allowing a user to select information from the retrieved information; and

transmitting the selected information to a mobile communications device when a predetermined condition is met.

12. A computer-readable memory as claimed in

claim 11, wherein the step of retrieving information from a site in a computer network to a computer running the program comprises:

prompting a user of the program to input an address of the site; and

retrieving information from the site identified thereby.

13. A computer-readable memory as claimed in claim 11, wherein the step of retrieving information from a site in a computer network to a computer running the program comprises:

prompting a user of the program to input search parameters for sites;

prompting the user of the program to select a site; and

retrieving information from the site identified thereby.

14. A computer-readable memory as claimed in claim 11, wherein the step of allowing a user to select information from the retrieved information comprises;

indicating to the user an amount of information which can be transmitted to the mobile communications device.

15. A computer-readable memory as claimed in claim 14, wherein the step of indicating to the user an amount of information which can be transmitted to the mobile communications device comprises:

prompting the user to input information about the mobile communications device; and

indicating the amount of information on the basis of the input information.

16. A computer-readable memory as claimed in claim 11, wherein the step of allowing a user to select information from the retrieved information comprises;

prompting the user to input data relating to a

format for displaying the information transmitted to the mobile communications device.

17. A computer-readable memory as claimed in claim 11, wherein the step of transmitting the selected information to a mobile communications device when a predetermined condition is met comprises:

transmitting a Short Message Service message over a cellular network.

18. A computer-readable memory as claimed in claim 11, wherein the step of transmitting the selected information to a mobile communications device when a predetermined condition is met comprises:

transmitting a paging message over a paging network.

19. A computer-readable memory as claimed in claim 11, wherein the step of transmitting the selected information to a mobile communications device when a predetermined condition is met comprises:

transmitting a data message over a cellular network.

20. A computer-readable memory as claimed in claim 11, wherein the step of transmitting the selected information to a mobile communications device when a predetermined condition is met comprises:

prompting the user to input data relating to the predetermined condition.

21. A computer terminal, adapted for retrieving information from a computer network and transmitting information to a mobile communications device, the terminal comprising:

means for selecting information from the retrieved information on the basis of data supplied by a user of the terminal; and

means for transmitting the selected information to the mobile communications device when criteria supplied

by the user of the terminal are met.

22. A computer terminal, adapted for retrieving information from an internet site and transmitting information to a mobile communications device, the terminal comprising:

means for selecting information from the retrieved information on the basis of data supplied by a user of the terminal; and

means for transmitting the selected information to the mobile communications device when criteria supplied by the user of the terminal are met.

The Patent Office

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Application No: GB 9802606.5 **Examiner:** Glyn Hughes
Claims searched: 1 to 10, 21 to 22 **Date of search:** 16 August 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): H4L (LDGP, LDGX), G4A (AFGX, AUDB)

Int Cl (Ed.6): H04Q 7/22, 7/32, G06F 17/30

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2310982 A (XCELLENET) see abstract	-
A	WO 97/17662 A1 (C/NET) see abstract	-

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.